

REMARKS

This Preliminary Amendment is filed with a Request for Continued Examination in response to the Final Office Action mailed May 17, 2006 and the Advisory Office action mailed Aug. 3, 2006. The Applicant appreciates the detail the Examiner included in the Advisory Action, as it has assisted in advancing the prosecution of the case. All objections and rejections are respectfully traversed.

Claims 1-19, 21-22, and 24-34 are now pending in the case.

Claims 1, 17, 21 and 22 have been amended to better claim the invention.

Claims 24-34 have been added.

Allowable Claims

In the Advisory Action, the Examiner indicated that claims 5, 16, and 22 would be allowable if written in independent form. The Applicant has incorporated limitations from claim 16 into independent claim 7 and respectfully urges claim 7 is now allowable.

Further, in light of the Examiner's indication that claim 16 contained allowable matter, the Applicant has added new claims 24-34. The Applicant believes these new claims are also allowable.

Rejections Under 35 U.S.C. §112

At paragraph 2 of the Final Office Action, claim 22 was rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. The Examiner maintained this rejection in the Advisory Action, stating that "the specification does not teach the multiple storage of the same entry in a first and second time as specified in the claim." The Applicant believes the phrase "similar entries," as well other wording in the claim, caused confusion. Accordingly, the Applicant has amended claim 22 to now recite:

22. The method of Claim 21 further comprising:

storing event notifications for the same queue at a first time slot and a second time slot, where the second time slot is further in the future than the first time slot, the event notification at the second time indicates a higher priority than the event notification at the first time slot.

The Applicant respectfully urges that there is sufficient written description in the specification to make clear to one skilled in the art that the Applicant had possession of the subject matter claimed in claim 22 as now amended. Specifically, page 13, line 28 to page 14, lines 2 of the Specification describes (emphasis added):

*The descriptors of a particular entry 530a may be substantially duplicated in the timing wheel, with the exception of different priority levels. For example, entries 532a and 534a **represent the same queue entry having substantially the same descriptors with the exception of different priorities P-0 and P-1.***

Referring to Fig. 5A, it is clear that entries for the same queue (in the example labeled queue Q_A) may be stored in association with a first and a second time in the future (in the example, at the “Current Time Slot” and the “Now +5us” time slot). It is further clear that entries may have higher or lower priority levels than one another, for example entry 532a has a priority level “P-0” and entry 534b has a different priority level “P-1.” The priority levels are described at page 13, lines 27-28 of the Specification as, for example, “high/low” priorities. Accordingly, the Applicant respectfully urges that claim 22 is supported by written description in the Specification.

At paragraphs 3-4 of the Final Office Action, claims 3-7 and 17- 20 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

Specifically, claim 3 was rejected in relation to the term “early forwarding,” which is no longer a part of the claim. As the Advisory Action does not mention this rejection, the Applicant assumes it is now moot.

Further, claim 17 was rejected in relation to the phrase “if the queue is inactive for the CIR, activating the CIR and incrementing the aggregate CIR bandwidth for a media link.” The Examiner repeated this rejection in the Advisory Action, The Applicant has amended claim 17 to be more clear. Claim 17 now recites:

17. A method for integrating traffic shaping and link sharing functions to enable scaling of a plurality of queues multiplexed to media links of an intermediate station in a computer network, the queues storing data packets that are destined for the media links, the method comprising the steps of:
notifying a queue scheduler when each packet is forwarded to a queue;
determining if the queue is using a committed information bit rate (CIR) and if the queue is using an excess information bit rate (EIR);
if the queue is not using the CIR, making use of the CIR and including such use in a calculated aggregate CIR bandwidth for a media link;
if the queue is using the CIR, making use of the EIR and including such use in a calculated aggregate EIR bandwidth for the link; and
calculating an EIR scale factor of the media link.

As the phrases the Examiner cited to as being indefinite have largely been removed, the Applicant respectfully urges that claim 17 is allowable.

Claim 20 was rejected in the Final Office Action based upon a variety of grounds. The Applicant has cancelled claim 20 and accordingly believes this rejection is now moot.

The Applicant respectfully notes that claims 4-6, 18 and 19 were rejected as depending from rejected base claims and do not themselves include rejected material. Since the above discussed base claims are believed to be in condition for allowance, claims 4-6, 18 and 19 are also believed to be in condition for allowance.

Rejections Under 35 U.S.C. §102

At paragraphs 5-6 of the Final Office Action, claims 1-4, 6-15, 17-21 and 23 were rejected under 35 U.S.C. §102(e) as being anticipated by Fan et al., U.S. Patent No. 6,408,005, issued on June 18, 2002, hereinafter (“Fan”).

The Applicant’s claim 1, representative in part of the other rejected claims states:

1. A method for integrating traffic shaping and link sharing functions to enable scaling of a plurality of queues multiplexed to media links of an intermediate station in a computer network, the queues storing data packets that are destined for the media links, the method comprising the steps of:

assigning committed information bit rate (CIR) and excess information bit rate (EIR) bandwidth values per queue, along with a shaped maximum bit rate per media link;

uniformly scaling the EIR bandwidths of all queues sharing a media link so that the sum of all scaled EIR bandwidths equals an available bandwidth of the shaped media link;

calculating when a queue is next eligible for servicing; and

storing event notifications in a timing wheel, each event notification having a hash entry identifying a queue, a media link, and a priority, the event notifications triggered when a queue is eligible for servicing.

Fan discloses a dynamic rate control (DRC) scheduler for scheduling cells. The scheduler constructs a rate for a stream from a minimum guaranteed rate and a portion of excess bandwidth that is made available to the stream. *See* col. 5, lines 42-45 and col. 6 lines 60-65. The distribution of excess bandwidth is determined by weights assigned to the streams. *See* col. 8, lines 17-18. Additionally, Fan describes using a time wheel data structure. *See* col. 18, lines 29-39. “As shown in Fig 8, each bin in the time wheel points to a[sic] four linked lists (one for each priority level) of VC identifiers whose timestamps correspond to the bin label.” *See* col. 18, lines 29-33. Virtual Channels (VCs) are served from a list constructed from the bins in round robin fashion. *See* col. 18, lines 34-33. A

scheduler is used to implement the round-robin among the four linked lists. *See* col. 17, lines 16-24.

The Applicant respectfully urges that Fan does not show Applicant's novel "*storing event notifications in a timing wheel, each event notification having a hash entry identifying a queue, a media link, and a priority, the event notifications triggered when a queue is eligible for servicing.*"

While the Applicant claims a timing wheel with event notifications each having *a hash entry identifying a priority*, Fan discloses a far differently structured timing wheel, where each time slot points to four linked lists, one associated with each priority level. So rather than indicate priority levels by a hash entry itself, Fan suggests separate linked lists should be used to represent different priority levels. The Applicant respectfully urges that use of four linked lists, rather than a hash entry, to identify priority levels introduces unnecessary complexity and overhead into Fan's system, that is avoided by the Applicant. Indeed, Fan discusses at col. 17, lines 16-24 that a scheduler is needed to arbitrate between these multiple linked-lists.

As an example of the differences between the Applicant's claims and Fan, the Applicant suggests the Examiner compare Applicant's Fig. 5B and Fan's Fig. 7. Fig. 5B shows hash entries, for example Q_c, I_x, P_0 , where P_0 represents a priority. Fan, in contrast, has no such hash entry indicating priority, but rather uses separate linked lists labeled NRT, RT-L, RT-S, and HP to indicate priority.

Thus, given the differing structures disclosed by Fan, the Applicant respectfully urges that Fan does not show this aspect of the Applicant's claims.

Furthermore, the Applicant respectfully traverses the Examiner's statement that the claimed *hash entries* are "logically equivalent" to VC identifiers. Virtual Channel identifiers are well known in the art as numerical tags, often of 16-bits, which specify a particular virtual channel on which data is transmitted. There is no suggestion in Fan that VC identifier are generated by or otherwise associated with a hash operation.

Accordingly, absent suggestion of a hash operation, VC identifiers should not be interpreted as *hash entries*.

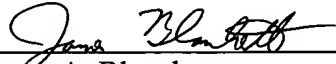
As such, the Applicant respectfully urges that Fan is legally precluded from anticipating the claims under 35 U.S.C. § 102, because of the absence from Fan of the Applicant's novel "*storing event notifications in a timing wheel, each event notification having a hash entry identifying a queue, a media link, and a priority, the event notifications triggered when a queue is eligible for servicing.*"

In the event that the Examiner deems personal contact desirable in disposition of this case, the Examiner is encouraged to call the undersigned attorney at (617) 951-2500.

In summary, all the independent claims are believed to be in condition for allowance and therefore all dependent claims that depend there from are believed to be in condition for allowance. The Applicant respectfully solicits favorable action.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,



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